



Nirmal Seeds Biofortification programme with HarvestPlus





Nirmal Seeds Pvt. Ltd.

(An ISO 9001:2008 Certified Company)

Registered and Administrative Office:

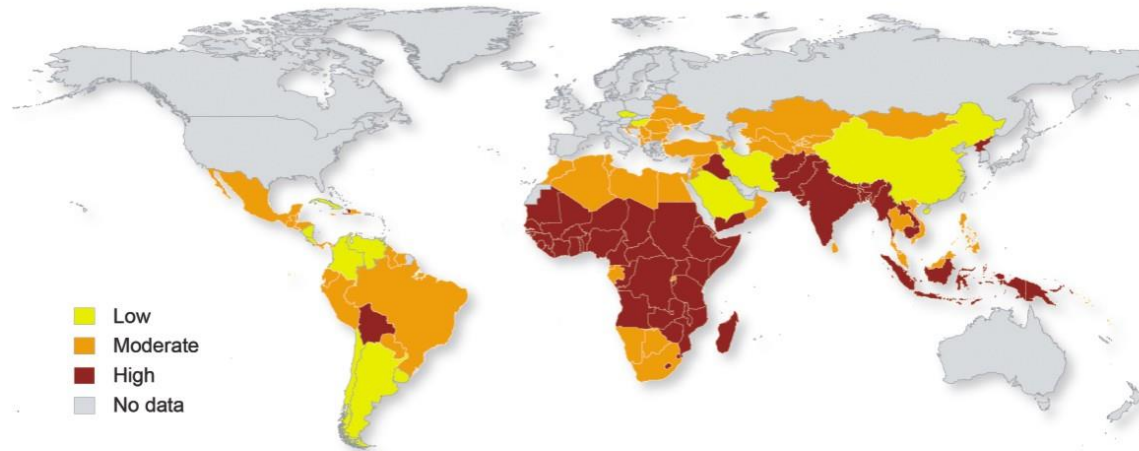
P.O.Box No.: 63, Bhadgaon Road, Pachora-424201, Dist. Jalgaon (MH),
INDIA. Phone: (02596) 244366, 244396 Fax.: (02596) 244045,
e-mail: info@nirmalseedsindia.com
Web: www.nirmalseedsindia.com

Pearl Millet and Wheat Bio fortification programme

HarvestPlus is a part of the CGIAR Research Program on Agriculture for Nutrition and Health (A4NH) which helps in realizing the potential of agricultural development to deliver gender-equitable health and nutritional benefits to the poor.

HarvestPlus is a leader in the global effort to end hidden hunger caused by the lack of essential vitamins and minerals in the diet, such as vitamin A, zinc and iron.

Global Prevalence of Micronutrient Deficiencies



This map details worldwide severity of the most common micronutrient deficiencies—vitamin A, anemia, and zinc—using World Health Organization (WHO) children under 5 prevalence data. Severity was coded using a 3-point weighting system based on levels of public health significance cut-offs (low, moderate, and high). www.harvestplus.org

Target Crops, Nutrients, Countries & Released Year :

Bean	Iron	DR Congo, Rwanda	2012
Cassava	Vitamin A	DR Congo, Nigeria	2011
Maize	Vitamin A	Nigeria, Zambia	2012
Pearl Millet	Iron	India	2012
Rice	Zinc	Bangladesh, India	2013
Sweet Potato	Vitamin A	Mozambique, Uganda	2007
Wheat	Zinc	India, Pakistan	2013

Iron :

- ➔ Important part of hemoglobin.
- ➔ Carries oxygen throughout the body.
- ➔ Helps to increase resistance to stress and disease.
- ➔ Deficiency leads to anaemia, ulcers, inflammatory bowel syndrome, haemorrhoids, intestinal disorder, palpitation and general fatigue, also critical to health of pregnant mother and unborn child.
- ➔ In India near about 74% children (6-35 month age), 80% pregnant women and 52% other women suffering from Iron deficiency.

Pearl Millet scenario in India :

- Area under Pearl millet 9.13 million hectare.
- Pearl millet is one of the major staple food crops in India.
- Nearly 95 per cent of the produce is used for the food purpose.

To overcome the nutritional deficiency in different parts of the world, CGIAR (Consultative Group On International Agricultural Research) and IFPRI (International Food Policy Research Institute) initiated the project under Harvest Plus Challenge programme in 2004. Dr. M.S.

Swaminathan a Father of Indian Green Revolution (Board member of HarvestPlus), has been strong promoter for the Biofortification in India to create the awareness of the nutritional deficiency particularly associated with Iron and Zinc as well as other linkages between nutrition and agriculture. The programme identified, Iron and Zinc deficiency in the Indian population. Pearl millet is the best source of Iron and Zinc to supplement the deficit quantity in the diet.

Nirmal Seeds in association with the HarvestPlus played a vital role for the development and delivery activities of Biofortified Pearl millet variety ICTP-8203 Fe, (*Dhanashakti*). Nirmal Seeds created awareness through campaigning like field demonstrations, rallies with successive seed production of Biofortified Pearl millet variety ICTP-8203 Fe, (*Dhanashakti*). Through this programme Nirmal Seeds could reach 23000 farmers in the first year with Biofortified Pearl millet variety ICTP-8203 Fe, (*Dhanashakti*). The entire data base regarding the consumer acceptance was also done by the nutrition team of the HarvestPlus.

Nirmal's ICTP-8203 Fe (*Dhanashakti*) seed sale status :

Year	Quantity sold (tonnes)
2012-13	177
2013-14	142
2014	363



Nirmal's CMD, Mr. R.O.Patil, addressing to the farmer rally regarding the Pearl millet Biofortification

Nirmal Seeds Pvt. Ltd. (NSPL)

- Private sector company with social commitments.
- The company with leading sale of ICTP-8203 since decade.
- Quality and sustainable seed production for the marginal, poor farming community.
- NSPL a pioneer company to cater the Biofortified Pearl millet and Wheat in Indian market.
- Research focus on Hybrid development in Biofortified crops.

Nirmal Seeds Biofortification Programme

Nirmal's Pearl millet hybrids has shown encouraging levels of Iron and Zinc content.

1. NPH 4133 (Fe: 68; and Zn: 71)
2. NPH 4503 (Fe: 68; and Zn: 71)
3. NPH 4604 (Fe: 82; and Zn: 76)
4. NPH 4915 (Fe: 62; and Zn: 74)
5. NPH 4753 (Fe: 74; and Zn: 78)
6. NPH 4828 (Fe: 87; and Zn: 86)

(Source ICRISAT XRF data 2013).





Dr. M. S. Swaminathan (Father of Indian Green Revolution), Dr. Wolfgang H. Pfeiffer (Head - Product Development, HarvestPlus), Dr. J. C. Rajput (Director-Nirmal Seeds), Mr. Ashish Wele - President (Business Head), Mr. Milind P. Kulkarni (Biofortification, Cereal breeder) and Nirmal's team visit to Biofortified Pearl millet variety Dhanashakti and Wheat research farm on the occasion of the Silver Jubilee of Nirmal Seeds in March 2013.

Nirmal Seeds Pvt. Ltd. also initiated the Biofortification programme in Wheat with the HarvestPlus. Adaptive trails of Zinc rich varieties viz., Abhay and Akshay are conducted in the targeted states (Uttar Pradesh, Bihar, Chattisgarh, Jharkhand, Madhya Pradesh, Maharashtra and Gujarat) in India. The seed production programme of these varieties are in progress in the current season 2014-15.

HarvestPlus has selected Nirmal Seeds PLC, Ethiopia as its private sector partner for “*Improving Nutrition in Ethiopia*” from this year 2014-15.

THANK YOU